

A NEW GENUS AND FIVE NEW SPECIES OF AMERICAN FISHES

By SAMUEL F. HILDEBRAND

U. S. Fish and Wildlife Service

The new forms herein described were discovered more or less incidentally during the past several years while working with various groups of tropical and subtropical fishes. It seems advisable to publish the descriptions now, as some of the names are desired for inclusion in a general work.

The types of the new species are all in the National Museum, and their catalog numbers are given in the accounts of the species. The writer is indebted to Dr. Alexander Wetmore, Secretary of the Smithsonian Institution, and to Dr. Waldo L. Schmitt, head curator of zoology, and Dr. Leonard P. Schultz, curator of fishes, in the National Museum, for laboratory space and for the use of the specimens needed in the studies that led to the discovery of the new genus and the new species described in these pages.

Family TORPEDINIDAE

NARCINE SCHMITTI, new species

FIGURE 1

Disk somewhat narrower than long, its anterior outline moderately broadly rounded, with tip of snout projecting very slightly, its width 2.3 in total length; its length 2.0; length anterior to axil of pectoral 2.1; length anterior to vent 1.95; length posterior to vent 2.1; tail robust, not strongly depressed, its width at axil of ventrals 5.15 in length anterior to vent; its depth at same place 5.7; depth of its peduncle 4.65 in snout; tail with a rather feeble lateral dermal fold, beginning behind first dorsal; snout rather short, its length anterior to eye 3.85 in length anterior to vent, its preoral length 3.6; eye and spiracle about equal in size, the former 5.6 in snout anterior to eye; space between spiracles 1.8; mouth small, its width 1.85 in snout; teeth rounded, each tooth with a rather prominent, pointed posterior cusp; the two dorsal fins of about the same size and shape, the base of the second one 1.75 in snout, and its height 1.15; space between

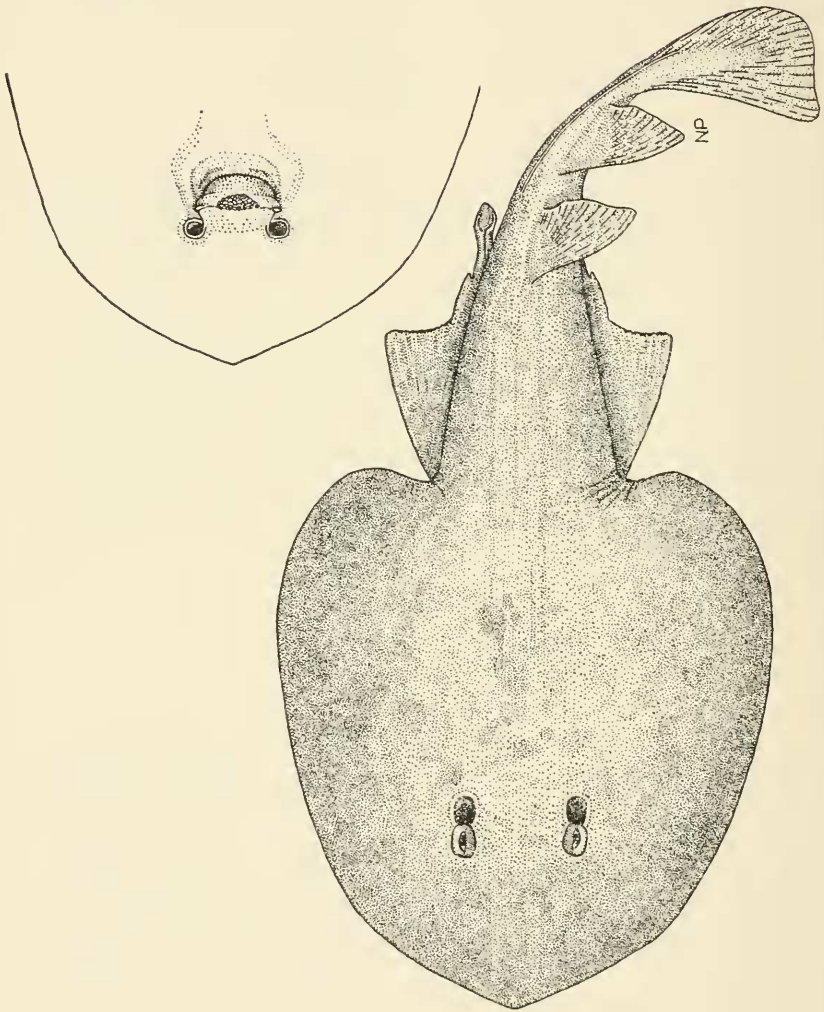


FIG. 1.—*Narcine schmitti*, new species. From the type (U.S.N.M. No. 94044), total length 210 mm., from White Friars Island, off mouth of Gulf of California. Insert, showing mouth and nostrils. Drawing by Mrs. Nancy D. Patton

dorsal fins 3.7; upper part of caudal fin with a rather acute angle, lower part rounded, the rest of margin nearly straight; ventral with nearly straight distal margin, its outer margin 3.7 in length anterior to vent; clasper fully a third longer than adjacent part of ventral, 3.2 in length anterior to vent.

Color brownish above, with many indistinct dark spots; plain pale underneath.

The description offered herewith is based on the holotype, the only specimen known, a male 212 mm. long, taken by Waldo L. Schmitt, for whom this species is named, at White Friars Island, off the mouth of the Gulf of California, dredged in 5 to 10 fathoms, on March 3, 1934 (U.S.N.M. No. 94044).

This species is related to *N. entemedor* Jordan and Starks and *N. vermiculatus* Breder. From the first it differs prominently in the much more robust tail, which is deeper and less strongly depressed, and from the second (of which I have seen no specimens) it seems to differ, according to the published accounts, in having smaller spiracles, which are about equal in size to the eyes, and not notably larger as in *vermiculatus*. It differs from both species in color, as the upper surface is marked with indistinct dark spots, whereas adults of *entemedor* are of a uniform gray, and *vermiculatus* has pale markings.

This species, like *vermiculatus*, seems to become sexually mature at a smaller size than *entemedor*, as the claspers in the 212-mm. male are much longer than the adjacent parts of the ventrals, and apparently fully mature. In a male *entemedor* 215 mm. long they are equal in length to the adjacent parts of the ventrals, and are thin, flexible, and apparently immature.

Family CLUPEIDAE

ILISHA APAPAE, new species

FIGURE 2

Head 4.0; depth 3.25; D. 15; A. 48; P. 14; scales mostly missing, about 60; ventral scutes 26.

Body rather elongate, strongly compressed, its greatest thickness scarcely a third of its depth; dorsal outline in advance of dorsal fin nearly straight; ventral outline strongly convex; chest and abdomen compressed, armed with 20 moderately strong keels in advance of ventral fins and 6 behind them; head fairly large; margin of opercle moderately concave in advance of pectoral, its posterior margin convex; snout shorter than eye, without a definite median notch, 4.45 in

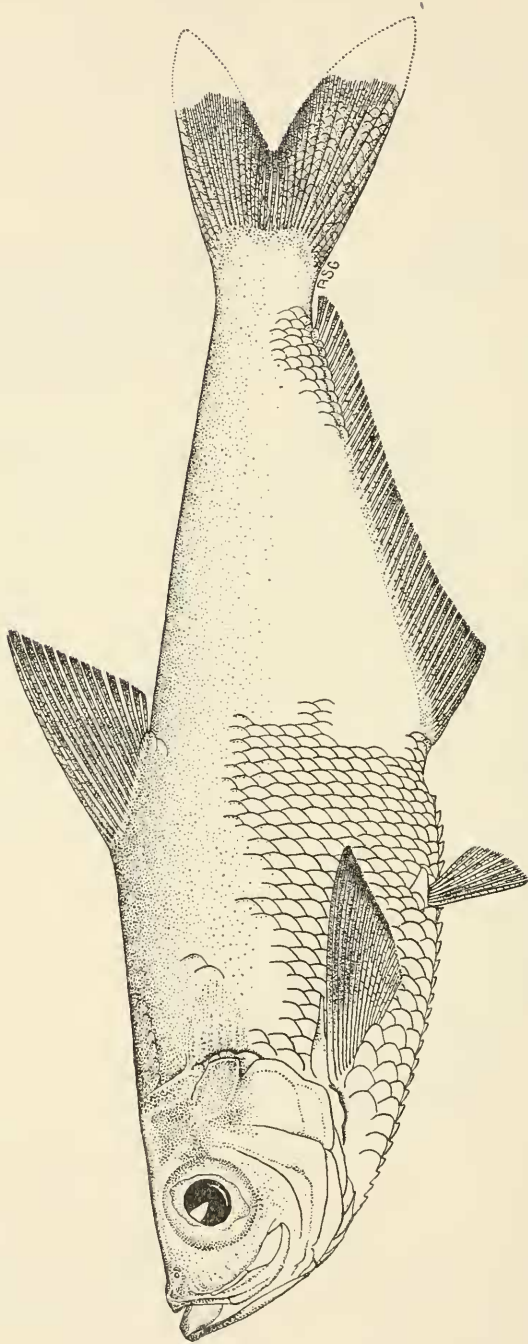


FIG. 2.—*Ilisha ahapac*, new species. From the type (U.S.N.M. No. 52550), total length 200 mm., taken in Amazon River somewhere between Pará and Manaus, Brazil. (Scales partly lost, indicated only where present.) Drawing by Mrs. Ann S. Green.

head; eye large 2.9; interorbital narrow 10; mouth rather oblique; mandible projecting strongly, almost entering dorsal profile, 1.75 in head; maxillary narrowly rounded posteriorly, reaching below anterior margin of pupil, 1.85 in head; a soft ligament present between premaxillary and maxillary; teeth all small to minute, several in a single series on anterior part of mandible, a series on premaxillary and on margin of maxillary, bands of granular teeth on palatines, pterygoids, and tongue; gill rakers at angle of first arch scarcely half length of eye, 19 on lower limb of first arch; scales from middle of side below base of dorsal fin scarcely deeper than long, not very closely imbricated, with 4 or 5 vertical striae, only the posterior one complete, the margins nearly smooth; dorsal fin high anteriorly, the longest rays reaching far beyond the tip of the last one if deflexed, only a little shorter than head, origin of fin nearer margin of snout than base of caudal by a distance equal to length of snout and eye; caudal damaged, forked, the lower lobe evidently the larger; anal fin long, scarcely elevated anteriorly, its margin nearly straight, origin of fin under last ray of dorsal and equidistant from posterior margin of eye and base of caudal, base of fin 2.4 in standard length; ventral fins long (for an *Ilisha*), inserted rather less than an eye's diameter in advance of vertical from origin of dorsal, and notably nearer origin of anal than base of pectoral, 2.3 in head; pectoral fin large, reaching well beyond base of ventral, 4.3 in standard length, with a free axillary process only about a third the length of fin.

Color of the type, an old preserved specimen, grayish above, yellowish to silvery on sides; upper surface of snout and tip of mandible dark brown; a brownish area behind eye; fins all with dusky punctulations, few and scattered on ventral fins, most numerous on dorsal and caudal and on upper rays of pectoral.

This species is represented in the collection of the National Museum by a single specimen, the holotype (No. 52550), the only one known. It has a total length of about 200 mm. (length to base of caudal 160 mm.), and was taken in the Amazon River somewhere between Pará and Manáos, Brazil.

This species differs from other local forms in having a ligament between the maxillary and premaxillary, where the other tropical Atlantic species of the genus have a bone bearing fine teeth along its margin. The body in *apapae* is elongate, as in *altamazonica*, another local species, but it apparently has larger scales, which are mostly lost, fewer dorsal and more numerous anal rays. Furthermore, *apapae* has more gill rakers than *altamazonica*, but fewer than the other American species of this genus. It is nearest *furthii* from the Pacific

coast of tropical America, which also has a ligament between the maxillary and premaxillary, but *furthii* has more ventral scutes (34 to 37), and the ventral fins are inserted farther forward, being equidistant from the base of the pectoral and origin of the anal in *furthii*, whereas they are inserted notably nearer the origin of the anal than the base of the pectoral in *apapaë*.

The name, *apapaë*, is from apapa, used in Brazilian publications as a name for fresh-water herrings.

NEOPISTHOPTERUS, new genus

Genotype.—*Odontognathus tropicus* Hildebrand, U. S. Nat. Mus. Bull. 189, p. 94, fig. 19, 1946, Puerto Pizarro, Perú, and Balboa, Canal Zone.

This genus belongs to that group of small herrings with a strongly compressed body, a long anal fin which begins in advance of the dorsal fin, and in which the ventral fins are missing. Consequently, the relationship of this genus is with *Opisthopterus* and *Odontognathus*. From these genera it differs importantly in the structure and relative position of the maxillary and premaxillary. In the two old genera mentioned these two elements are separated by a short toothless membranous section (hitherto undescribed). The margin of the upper jaw, nevertheless, is continuous (uninterrupted). In the new genus the margin is discontinuous (interrupted), as the maxillary definitely overlaps the premaxillary, that is, it extends over the distal end of the premaxillary (fig. 4). *Opisthopterus* and this new genus agree in having a relatively short maxillary, which does not seem to be produced into a long narrow process as in *Odontognathus* (at least there is no indication in the rather small specimens, up to 66 mm. in standard length, of *Neopisthopterus* at hand, that this element will become produced with age and growth). Furthermore, in *Opisthopterus* and the new genus the margins of the ventral scutes are entire (smooth), whereas the margins of the posterior ones in *Odontognathus* are sharply serrate. The teeth in *Neopisthopterus* are all small to minute, and are present on the jaws, palatines, pterygoids, and tongue, but missing on the vomer. Vertebrae about 46 or 47.

The anal fin in the two known species of this genus is shorter than in the related genera, being composed of 39 to 48 rays, whereas the species of the genus *Opisthopterus* have about 56 to 65 rays, and those of *Odontognathus* about 58 to 78.

The close relationship between this new genus and *Opisthopterus* suggested the name, *Neopisthopterus*, that is, a new *Opisthopterus*.

This genus to date is represented by two species, *N. tropicus*, the type species of this genus, known from Panamá and northern Perú, and by the new species herein described from Cuba.

NEOPISTHOPTERUS CUBANUS, new species

FIGURES 3 AND 4

Head 4.25 to 4.6 (4.25); depth 4.75 to 5.8 (5.1); D. 13 or 14 (13); A. 39 to 43 (41); P. 13; scales lost, about 43 pockets; ventral scutes 23 to 28 (26); vertebrae 47 (counted in one specimen).

Body moderately elongate, not excessively compressed, its greatest thickness between a third and fourth of its depth; dorsal outline of head straight to slightly convex; ventral outline anteriorly rather strongly convex; chest and abdomen compressed, armed with 23 to 28 (26) scutes; head short, not much longer than deep, its depth at vertical from slight cross groove at occiput 5.2 to 5.8 (5.8) in standard length; margin of opercle rounded, without an indentation in front of pectoral; snout about as long as eye, 3.3 to 4.2 (4.2) in head; eye 3.4 to 4.1 (3.4); interorbital 7.3 to 9.0 (7.4); mouth moderately oblique; mandible projecting slightly, 1.6 to 1.8 (1.75) in head; maxillary rather narrowly rounded posteriorly, reaching to or somewhat beyond vertical from posterior margin of pupil, 1.55 to 1.8 (1.6) in head; teeth all small to minute, apparently in a narrow band on anterior part of lower jaw, those on premaxillary and maxillary in a single series, the row interrupted at point of overlapping of maxillary and premaxillary, very small teeth on palatines, pterygoids, and median line of tongue; gill rakers slender, about as long as pupil at angle, 17 to 19 (18) on lower limb of first arch; scales nearly all missing, rather large, very thin, with smooth margins, and without evident striations; dorsal fin small, somewhat elevated anteriorly, its margin convex, origin of fin rather more than an eye's diameter behind origin of anal and about equidistant from margin of opercle and base of caudal; caudal fin forked, the lower lobe slightly the longer, scarcely as long as head; anal fin moderately long, its origin about equidistant from posterior margin of eye and base of caudal, its base 2.55 to 3.0 (2.55) in standard length; pectoral fins injured, apparently fairly large.

Color of preserved specimens pale; side with a whitish band (no doubt silvery in life), about half as broad as eye; upper surface of head posteriorly brownish with rather large dusky dots; margin of snout medianly and anterior part of mandible with dusky dots; median

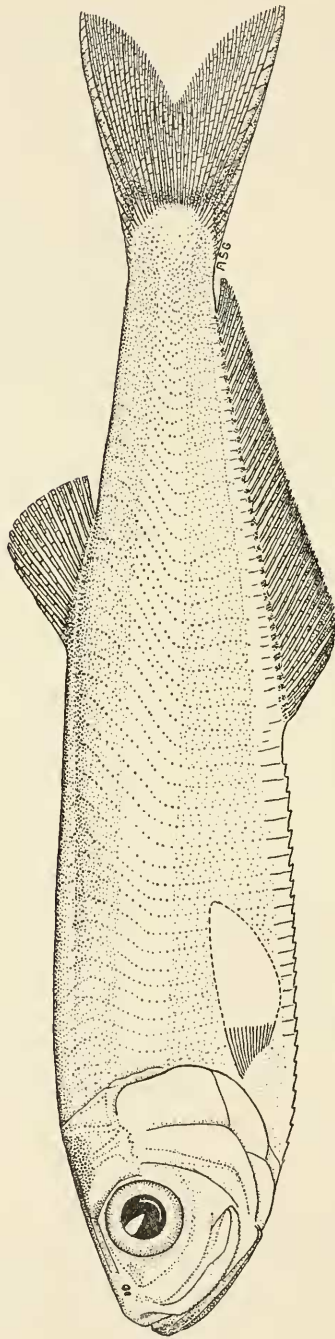


FIG. 3.—*Neopisthopterus cubanus*, new species. From the type (U.S.N.M. No. 143569), total length 50 mm., taken at Havana, Cuba. Drawing by Mrs. Ann S. Green.

line of back also with scattered dusky points; these also present on base of caudal, forming a cross line and extending on caudal lobes; base of anal with a row of dark dots, the fin also with dusky dots chiefly near margin.

This species is represented in the collection of the National Museum by the type (No. 143569), a specimen 50 mm. long (41 mm. to base of caudal), and five paratypes 43 to 47 mm. long (35 to 38 mm. to base of caudal), all collected in the vicinity of Havana, Cuba, by Luis Howell Rivero, who sent them to the writer with a collection of

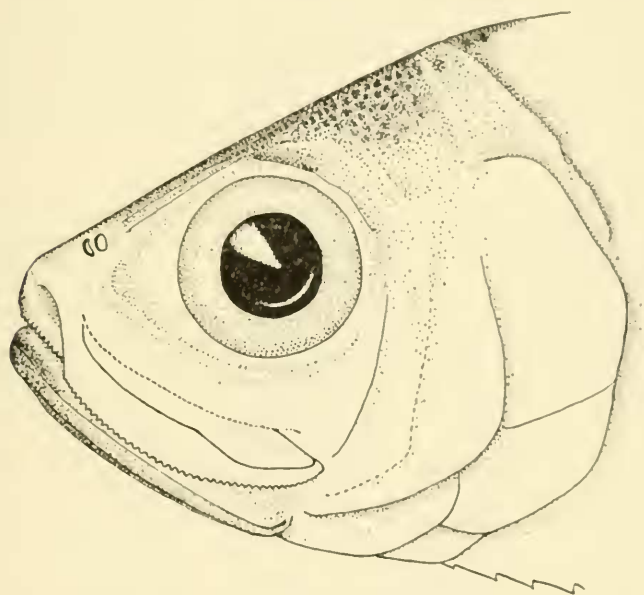


FIG. 4.—*Neoopisthopterus cubanus*, new species. From the type (U.S.N.M. No. 143569). Note overlapping of maxillary and premaxillary. Drawing by Mrs. Ann S. Green.

anchovies (Engraulidae). These small fish apparently are not fully mature. The proportions and enumerations enclosed in parentheses in each instance apply to the type.

This species is very close to *Odontognathus tropicus* Hildebrand (U. S. Nat. Mus. Bull. 189, p. 94, fig. 19, 1946), which was described from specimens collected in the Gulf of Guayaquil, Puerto Pizarro, Perú, and at Balboa, Canal Zoué. It was learned from a comparison of the type material of *O. tropicus* with the specimens herein described as *N. cubanus* that the two species are congeneric. Because *tropicus* is represented by larger and more mature specimens than *cubanus*,

the former was selected as the genotype. A comparison of the type material of the two species, in fact, has revealed only minor differences, which are shown in the following parallel comparison:

<i>N. cubanus</i>	<i>N. tropicus</i>
Anal fin rather short, with 39 to 43 rays, its base 2.55 to 3.0 in standard length, origin of fin usually equidistant from anterior margin of eye and base of caudal.	Anal fin somewhat longer, with 43 to 48 rays, its base 2.25 to 2.8 in standard length, origin of fin usually equidistant from posterior margin of eye and base of caudal.
Dorsal fin rather short, with 13 or 14 rays, its origin slightly more than an eye's diameter behind origin of anal, and about equidistant from margin of opercle and base of caudal.	Dorsal fin slightly longer, with 14 to 16 rays, its origin scarcely an eye's diameter behind origin of anal, and about equidistant from posterior margin of eye and base of caudal.
Gill rakers 17 to 19 on lower limb of first arch.	Gill rakers 18 to 21 on lower limb of first arch.

This, then, is another instance of the rather common occurrence of "twin" species in the tropical Atlantic and Pacific. Such closely related species generally have been found on the opposite coasts of Panamá. However, as the West Indian (Cuban in this instance) and the Atlantic Panamanian faunas are largely identical, *cubanus* may be expected on the Atlantic coast of Panamá and the neighboring countries.

Family SYNODONTIDAE

SYNODUS CINEREUS, new species

FIGURE 5

Trachinocephalus myops BEAN (not of Schneider), Fishes in "The Bahama Islands," Geogr. Soc. of Baltimore, 1905, p. 297, Bahama Islands.

Head 4.0, 3.9; depth about 6.1, 7.2 (not accurate because of distortion); D. 12, 11; A. 9, 9¹; P. 12, 13; scales 57, 60, before dorsal 20, 21.

Body about as broad as deep at insertion of ventral fins, caudal peduncle deeper than broad, 4.1, 4.5 in head; head nearly as broad as deep, its upper surface posterior to interorbital with bony ridges; upper anterior rim of eye with coarse serrae; snout broader than long, 5.0, 5.6 in head; eye 4.3, 5.6; interorbital concave, 15, 9.7 in head; mouth large, premaxillary extending far beyond eye, 1.75, 1.7 in head; mandible rounded, without fleshy knob, included in upper jaw; lateral

¹ The last double ray of the dorsal and of the anal was counted as one.

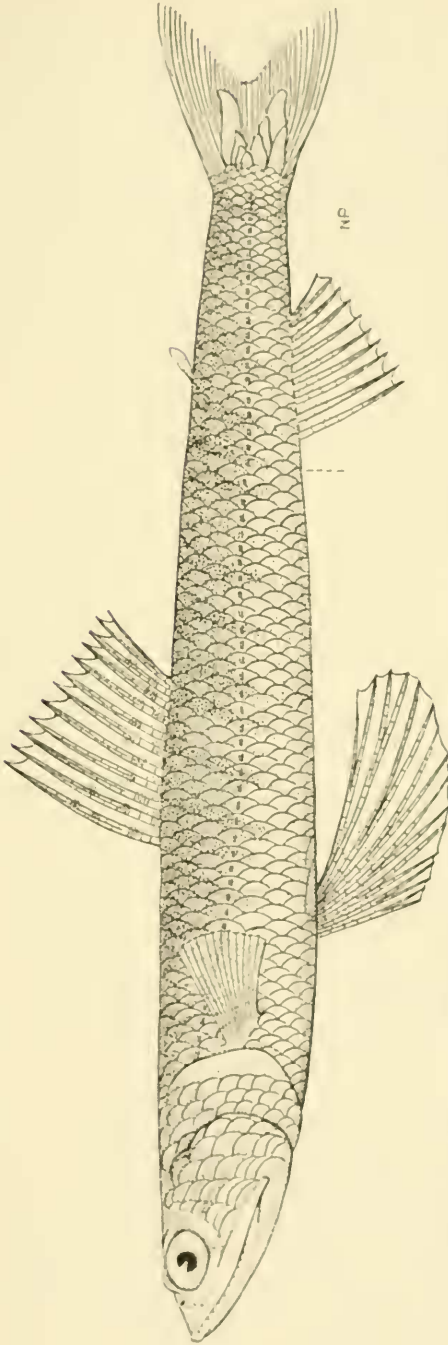


FIG. 5.—*Synodus cinereus*, new species. From the type (U.S.N.M. No. 53070), total length 128 mm., from the Bahamas. Drawing by Mrs. Nancy D. Patton.

line slightly decurved, not forming a keel on caudal peduncle; scales firm, 3 complete rows between lateral line and base of dorsal, those on lower part of cheek and opercle very elongate, in about 8 longitudinal rows; dorsal fin with a nearly straight margin, the anterior rays not reaching beyond tips of the posterior ones if deflexed, longest ray 1.65, 1.75 in head, origin of fin somewhat nearer adipose than tip of snout, its distance from tip of snout 2.35, 2.3 in length; adipose very small, over middle of anal; caudal short (somewhat frayed); anal small, its origin a little more than half as far from base of caudal as base of ventral, its base 8.7, 9.6 in length, 2.15, 2.5 in head; ventral inserted well in advance of dorsal, the inner ray more than twice as long as the outer one, the longest ray about as long as head, 4.3, 4.3 in length; pectoral inserted well below lateral line, scarcely reaching more than halfway to vertical from origin of dorsal, 2.4, 2.4 in head.

Color ash gray above, pale silvery below; back with about 16 brownish cross bars, some of them more or less double, more distinct in the smaller than in the larger specimen; top and side of head with irregular brownish markings; no shoulder spot; dorsal with indications of pearly gray spots, other fins plain.

This apparently new species is represented in the National Museum by two specimens, 72 and 128 mm. in total length, 61 and 108 mm. to base of caudal. These specimens are from the Bahama Islands, and are the ones listed as *Trachinocephalus myops* by Bean (see reference above). The larger one (No. 53079), which has been designated as the type, was taken in Clarence Harbor, and the smaller one at a little island near Nassau. The proportions and enumerations given last in each instance apply to the type.

This apparently new form differs from *S. intermedius* (Agassiz) and *S. poeyi* Jordan, two other local species, in having 57 to 60 scales in a lateral series and 20 or 21 in advance of dorsal, instead of 43 to 52, and 14 to 16 as in the other species. It also differs in the shorter pectoral fin, which reaches only a little more than half way to vertical from origin of dorsal instead of reaching nearly or quite to that point as in *intermedius* and *poeyi*. It differs further from *intermedius* in having only 9 instead of 11 or 12 anal rays, and its base is less than half the length of the head instead of notably longer than half the head. From *poeyi* it differs further in the shorter mandible, which does not end in a fleshy knob, and is included in the upper jaw, instead of ending in a fleshy knob and projecting prominently beyond the upper jaw. It differs from *S. synodus* (Linnaeus) in having only 3 complete rows of scales between the lateral line and the base of the

dorsal, instead of 4 complete rows, and it has 20 or 21 scales on the back in advance of the dorsal where *synodus* has only 15 or 16.

S. cinereus differs prominently from *S. saurus* (Linnaeus) in having only 9 rays in the anal instead of 11 or 12, as well as in the absence of a tentacle behind anterior nostril, which is prominent in *saurus*. It is readily distinguishable from *S. nicholsi* Breder, also from the Bahamas, by the much smaller head, which is contained only 2.9 times in the standard length of *nicholsi*, and by the included lower jaw, which projects in *nicholsi*.

The name *cinereus* was suggested by the ash-gray color of the upper parts of the specimens.

Family SERRANIDAE

DIPLECTRUM MEXICANUM, new species

FIGURE 6

Head 2.9; depth 3.2; D. X, 12; A. III, 7; P. 17; scales 6-53.

Body rather deep (for a *Diplectrum*), fairly compressed, its greatest thickness only a little greater than half its depth; dorsal profile anterior to occiput only slightly convex; caudal peduncle rather strongly compressed, 2.55 in head; snout pointed, 4.6; eye large, 3.6; interorbital 8.9; preorbital very narrow, narrower than pupil; mouth large, oblique; lower jaw projecting moderately, its tip well below general dorsal outline of head; maxillary extending below posterior margin of pupil, 2.2 in head; teeth in each jaw in a narrow band, some of the outer ones in each jaw enlarged, villiform teeth on vomer and palatines; angle of preopercle somewhat produced, with 10 or 11 somewhat enlarged spines, the middle ones not especially large, nor notably more divergent, the vertical limb rather strongly serrate, the horizontal limb mostly smooth; gill rakers rather robust, those at angle about half length of eye, 12 on lower (including rudiments), and 8 on upper limb, of first arch; scales firm, strongly ctenoid, in 6 oblique rows on cheek, larger on opercle, 4 in an oblique series below base of opercular spine; dorsal spines slender, rather high, fourth and fifth spines of about equal length, not quite twice the length of the ninth spine, and a little longer than the highest soft rays, 2.0 in head; caudal forked, the upper lobe longer than the lower; anal spines small, graduated, the second scarcely stronger than the third, 5.3 in head; ventral inserted slightly in advance of base of pectoral, with a slender spine contained 2.4 in head; pectoral reaching well beyond tip of ventral, about 10 vertical from vent, with a rather symmetrically rounded margin, 1.3 in head, 3.75 in length.

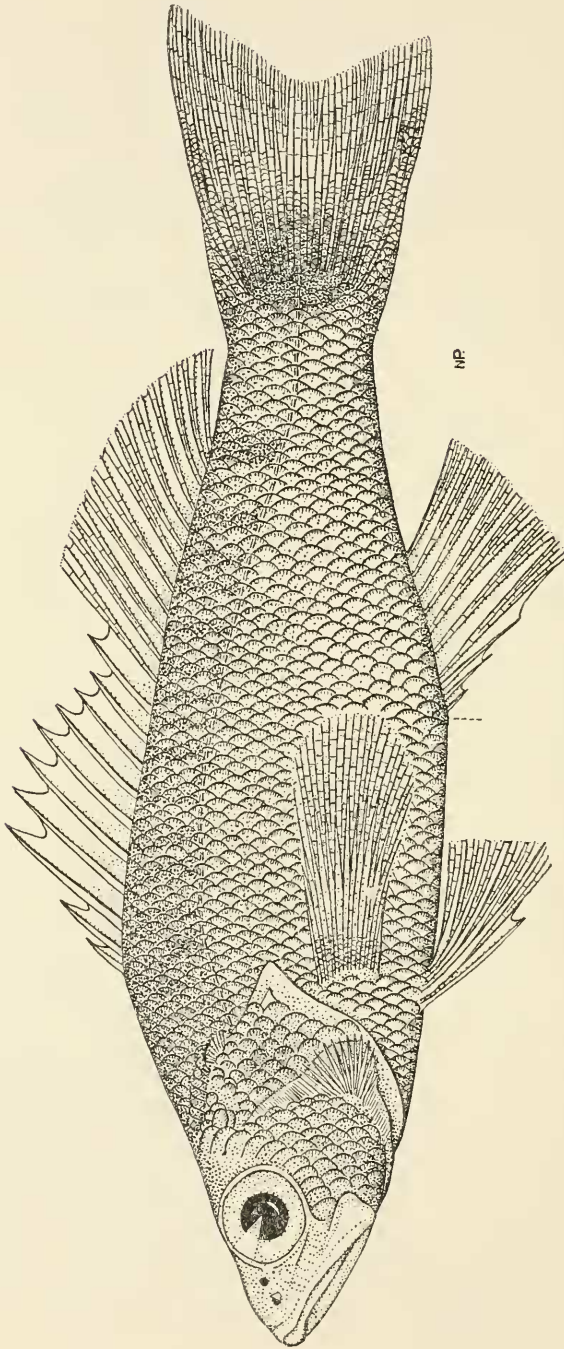


FIG. 6.—*Diplectrum mexicanum*, new species. From the type (U.S.N.M. No. 46518), total length 122 mm., from Gulf of California. Drawing by Mrs. Nancy D. Patton.

Color brown above lateral line, pale brownish to pale silvery below; back posteriorly with slight indications of narrow cross stripes; a dark blotch on opercle, and another one at base of caudal; fins plain translucent, the anal and ventrals a little paler than the other fins.

This apparently new species is represented in the collections of the National Museum by the holotype (No. 46518), 125 mm. (94 mm. to base of caudal) long, the only specimen known, which was taken in the Gulf of California, at $30^{\circ}18' N.$, $113^{\circ}05' W.$, by the *Albatross*, on April 24, 1889.

The deep body, the almost straight gently elevated dorsal profile of the head, the large scales, rather small number of gill rakers, the long slender dorsal spines, and the short anal spines distinguish this species from the others of the genus of the Pacific Coast.

This species was named *mexicanum* because the type was taken in Mexican water.